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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,806	03/13/2001	Futoshi Tomiyama	29287/119	6206

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EXAMINER

WATKO, JULIE ANNE

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 10/24/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/805,806

Applicant(s)

TOMIYAMA ET AL.

Examiner

Julie Anne Watko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 8-15 is/are pending in the application.
- 4a) Of the above claim(s) 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-4, 8-10 and 12-15, in Paper No. 6, filed July 29, 2003, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claim 11 has been withdrawn from consideration as drawn to a non-elected invention.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show upstream and downstream sides as described in the specification (see, e.g., page 21, line 2, "downstream side"). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities:

On page 21, lines 5-6, the specification states "the portion between the faced sides 30, 31 of the first pole 15 and the second pole 9 constitutes a write gap 36." This is inconsistent with the

appearance of Fig. 7, in which reference numeral 36 points to 31 itself, not to a space between 30 and 31.

On page 29, lines 17-20, the specification states "FIG. 13 shows a fourth embodiment of the present invention. This embodiment differs from the second embodiment shown in FIG. 11 only in that the recording point of magnetization inversion is shifted." This is inconsistent with the appearance of FIG. 13, which differs from FIG. 11 also in the omission of pole 15.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-2, 4, 10 and 12-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 recites the limitation "a first side intersecting said faced portions" in lines 9-10. This limitation is misdescriptive of the specification, which clearly shows that a first side 33 intersects with only one faced portion 32, and not with the other faced portion 35. Furthermore, there is insufficient antecedent basis for the limitation "said faced portions" in the claims.

b. Claim 1 recites the limitation "said magnetic gap" in line 10. There is insufficient antecedent basis for this limitation in the claims.

- c. Claim 2 recites the limitation “a first side intersecting said faced portions” in line 5. This limitation is misdescriptive of the specification, which clearly shows that a first side 33 intersects with only one faced portion 32, and not with the other faced portion 35.
- d. Claim 2 recites the limitation “the length of the projection of said recording magnetic pole onto the magnetic disk surface as measured along the radial direction of said magnetic disk is not more than the track pitch of said magnetic disk” in the last 3 lines. This limitation renders the claim indefinite. A radial projection length changes as a head is rotated with respect to the disk. No orientation is recited between the pole and the disk at the time of measurement; thus, it is unclear in what state of the disk apparatus (i.e. what relative positioning between head and disk) the pole is to be measured in the radial direction of the disk, such that the limitation “the length” is indefinite.
- e. Claim 4 recites the limitation “A magnetic disk apparatus as set forth in claim 3, wherein said magnetic head comprises a first magnetic pole and a recording magnetic pole” in lines 1-2. Claim 3 recites the limitation “a magnetic head having a magnetic pole” in lines 1-2. It is unclear how many poles are claimed in claim 4.
- f. Claim 4 recites the limitation “said second magnetic pole” in the last line. There is insufficient antecedent basis for this limitation in the claims.
- g. Claim 8 recites the limitation “said third side is disposed on the downstream side with respect to the moving direction of said magnetic head” in lines 1-2. This limitation is misdescriptive of the specification, which clearly discloses a moving disk with head stationary during transducing.

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- h. Claim 10 recites the limitation “the length of an overlapped area of the projection of said second magnetic pole onto the magnetic disk surface and track width of said magnetic disk is not more than 5% of said track width” in the last 3 lines. A disk generally has a plurality of tracks; thus, it is unclear what portion of “the magnetic disk surface and track width” is referred to by the “overlapped area” limitation. For example, it is unclear whether the “overlapped area” limitation refers to a track being read or recorded or to a track adjacent to a track being read or recorded.
 - i. Claim 12 recites the limitation “the moving direction of said magnetic head” in line 2. See rejection above regarding claim 8.
 - j. Claim 13 recites the limitation “said third side is disposed on the downstream side with respect to the moving direction of said magnetic head” in lines 1-2. See rejection above regarding claim 8. Also, there is insufficient antecedent basis for the limitation “said third side” in claim 3, from which claim 13 depends.
 - k. Claim 14 recites the limitation “the moving direction of said magnetic head” in line 2. See rejection above regarding claim 8.
 - l. Claim 15 recites the limitation “said third side is disposed on the upstream side with respect to the moving direction of said magnetic head” in lines 1-2. See rejection above regarding claim 8. Also, there is insufficient antecedent basis for the limitation “said third side” in claim 3, from which claim 15 depends.
8. Regarding claims 13 and 15: In the absence of a reasonably definite interpretation of a claim, it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions (*In re Steele*, 305 F.2d 859,134

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USPQ 292 (CCPA 1962)). See MPEP 2143.03. These claims will be treated in view of the prior art at such time as a reasonably definite interpretation becomes available.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 3-4 and 10 rejected under 35 U.S.C. 102(e) as being anticipated by Shukh et al (US Pat. No. 6504675 B1).

As recited in independent claim 3, Shukh et al show a magnetic disk apparatus (see Fig. 1) comprising a magnetic head (see Fig. 3) having a magnetic pole 12 formed by stacking thin films, a rotated magnetic disk 4, and a means (including 5 and 6) for positioning said magnetic head relative to said magnetic disk, wherein, at a position 8b on the recording disk where the angle S between the rotating direction of said magnetic disk and the thickness direction of said thin films constituting said magnetic pole is maximum ("maximum skew angle Φ is typically about +12 to +20 degrees"), the sum of $P \cdot \sin(S)$ and $W \cdot \cos(S)$ is not more than the track pitch of said magnetic disk (see Fig. 5, which shows that $TP > WW$, wherein $TP = (\text{track pitch})$, wherein $WW = TPL \cdot \sin(\Phi) + TPW \cdot \cos(\Phi)$, wherein $\Phi = (\text{skew angle})$, $TPL = (\text{pole thickness})$ and $TPW = (\text{pole width})$), where P is the film thickness of said magnetic pole and W is the width of said magnetic pole.

As recited in claim 4, to the extent understood, Shukh et al show that said magnetic head comprises a first magnetic pole 11 and a recording magnetic pole 12, and, at a position 8b on said magnetic disk where the angle $S (\Phi)$ between the rotating direction of said magnetic disk and the film thickness direction of said recording magnetic pole is maximum, the sum $P \cdot \sin(S)$ and $W \cdot \cos(S)$ (WW) is not more than (see Fig. 5, which shows that $WW < TP$) the track pitch (TP) of said magnetic disk, where P is the film thickness of said recording magnetic pole and W is the width of said second magnetic pole.

As recited in independent claim 10, to the extent understood, Shukh et al show a magnetic disk apparatus (see Fig. 1) comprising a magnetic head (see Fig. 3) formed by stacking thin films, and a rotated magnetic disk 4, wherein said magnetic head comprises a first magnetic pole 11 and a recording magnetic pole 12, and, at a position 8b on said magnetic disk where the angle $S (\Phi)$ between the rotating direction of said magnetic disk and the film thickness direction of said recording magnetic pole is maximum ("maximum skew angle Φ is typically about +12 to +20 degrees"), the length of an overlapped area of the projection of said second magnetic pole 12 onto the magnetic disk surface and track width of said magnetic disk is not more than 5% of said track width (see Fig. 5, in which an overlapped area is zero, to the extent understood, wherein $zero < (5\% \cdot WW)$).

Allowable Subject Matter

11. Claims 1-2, 8-9, 12 and 14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
12. Reasons for indicating allowable subject matter will be stated after the metes and bounds of the claims become definite.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim et al (US PAP No. 2002/0063992 A1) show a vertical writing type magnetic head (see Fig. 11); however, the reference application was filed in the U.S. after the filing of the instant case. Tagawa (US Pat. No. 5920449) shows a recording head for single layer magnetic film perpendicular magnetization medium comprising leading pole 46. Chang et al (US Pat. No. 6278591 B1) shows an inverted merged MR head having second pole tip P2 wider than a track width (see col. 4, lines 47-48, "the track width defined by the top first pole tip" P1T; see also Fig. 58, which shows P2 wider than P1T). Ramaswamy (US Pat. No. 4970616) shows a recording head having pole P2 with width along an outer edge considerably smaller compared to its width at the gap (see Fig. 4).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (703) 305-7742. The examiner can normally be reached on Mon&Tue until 2PM, Th until 5PM, Wed&Fri all day.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Julie Anne Watko

Examiner

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October 15, 2003

JAW

A handwritten signature in black ink, appearing to read 'Julie Anne Watko', with a stylized, cursive script.